

CLAIMS

1. A high-pressure discharge lamp comprising:

a bulb that includes a light emitting part having an electrode pair disposed and a discharge space formed therein,
5 and a first sealing part and a second sealing part provided at different ends of the light emitting part; and

a proximity conductor formed from a lead wire, a section of the lead wire being wound around an outer circumference of at least one of the first sealing part and a section of
10 the light emitting part to form a wound portion, and a remaining section of the lead wire forming a lead portion that extends from the wound portion across the light emitting part in proximity to or contacting with an outer surface of the light emitting part, to a side of the discharge lamp on
15 which the second sealing part is disposed, wherein

the lead portion is electrically connected to the electrode, of the pair, positioned nearer the second sealing part, and

at least a section of the wound portion is wound
20 substantially spirally at least 0.5 turns in a range from a 2nd reference plane to a 3rd reference plane, and a closed loop around one of the light emitting part and the first sealing part does not exist within the range, where the 2nd to 3rd reference planes are parallel to a 1st reference plane
25 lying orthogonal to a bulb longitudinal direction and including an end of the discharge space positioned at a base portion of the electrode nearer the first sealing part, the 2nd reference plane being distant 5 mm from the 1st reference

plane along the first sealing part and the 3rd reference plane passing through a tip of the electrode nearer the second sealing part.

5 2. A high-pressure discharge lamp comprising:

a bulb that includes a light emitting part having an electrode pair disposed and a discharge space formed therein, and a first sealing part and a second sealing part provided at different ends of the light emitting part; and

10 a proximity conductor formed from a lead wire, a section of the lead wire being wound around an outer circumference of at least one of the first sealing part and a section of the light emitting part to form a wound portion, and a remaining section of the lead wire forming a lead portion
15 that extends from the wound portion across the light emitting part in proximity to or contacting with an outer surface of the light emitting part, to a side of the discharge lamp on which the second sealing part is disposed, wherein

the lead portion is electrically connected to the
20 electrode, of the pair, positioned nearer the second sealing part, and

the wound portion is without a closed loop and has at least a section wound substantially spirally at least 0.5 turns in a range from a 2nd reference plane to a 3rd reference
25 plane that are parallel to a 1st reference plane lying orthogonal to a bulb longitudinal direction and including an end of the discharge space positioned at a base portion of the electrode nearer the first sealing part, the 2nd

reference plane being distant 5 mm from the 1st reference plane along the first sealing part, and the 3rd reference plane passing through a tip of the electrode nearer the second sealing part.

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3. The high-pressure discharge lamp of claim 1, wherein a shortest distance from the lead portion to the inner surface of the light emitting part is 10 mm or less in a range defined by the 1st reference plane and a 4th reference plane parallel
10 to the 1st reference plane and including an end of the discharge space positioned at a base portion of the electrode nearer the second sealing part.

4. The high-pressure discharge lamp of claim 1, wherein in
15 a range defined by the 2nd and 3rd reference planes, a pitch interval of the substantially spirally wound portion of the proximity conductor is at least 1.5 mm.

5. A lighting method for a high-pressure discharge lamp as
20 in claim 1, according to which a discharge of the high-pressure discharge lamp is initiated after applying a high-frequency voltage to the electrode pair.

6. The lighting method lamp of claim 5, wherein a frequency
25 of the high-frequency voltage is in a range of 1 kHz to 1 MHz.

7. The lighting method lamp of claim 5, wherein an amplitude

of the high frequency voltage is at least 400 V.

8. A lighting device for lighting a high-pressure discharge lamp as in claim 1, comprising a voltage applying unit
5 operable to apply a high-frequency voltage to the electrode pair.

9. The lighting method lamp of claim 8, wherein a frequency of the high-frequency voltage is in a range of 1 kHz to 1
10 MHz.

10. The lighting method lamp of claim 8, wherein an amplitude of the high frequency voltage is at least 400 V.

15 11. A high-pressure discharge lamp device comprising a high-pressure discharge lamp as in claim 1 and a lighting device as in claim 8 for lighting the high-pressure discharge lamp.

20 12. A lamp unit in which a high-pressure discharge lamp as in claim 1 is incorporated within a concave reflective mirror.

13. An image display device using a high-pressure discharge
25 lamp device as in claim 11.

14. A headlight device using a high-pressure discharge lamp device as in claim 11.